

EXHIBIT A

**COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD**



**PUERTO RICO WATER QUALITY
STANDARDS REGULATION**

**(This regulation derogates Regulation No. 4282 –
“Puerto Rico Water Quality Standards Regulation”
which was filed in the State Department on July 20, 1990)**

2003

Colloidal Substances

Minute substances including, but not limited to clay or other substances which do not settle out without the use of a flocculating agent.

Contaminant
See Pollutant.

Conservative Pollutant

A pollutant that is persistent and not subject to decay or transformation.

Criteria Continuous Concentration (CCC)

EPA national water quality criteria recommendation for the highest instream concentration of a toxicant or an effluent to which organisms can be exposed indefinitely without causing an unacceptable effect. It is equal to:

$$CCC = 1.0 \text{ TUc}$$

Criteria Maximum Concentration (CMC)

EPA national water quality criteria recommendation for the highest instream concentration of a toxicant or an effluent to which organisms can be exposed for a brief period of time without causing mortality. It is equal to:

$$CMC = 0.3 \text{ TUa}$$

Critical Initial Dilution

Minimum dilution to be determined by means of the use of a mathematical model to be approved by the Board, and according to the procedures described in "Mixing Zone and Bioassay Guidelines", approved by the Board.

Design Flow

The critical flow used for steady state waste load allocation.

Designated Uses

Refers to those uses specified in this Regulation for each water body or segment whether or not these uses are being attained.

Desirable Species

Species indigenous to the area or introduced to the area because of ecological or commercial value.

Diffuser

Structure which is connected to or is part of a submerged outfall provided with ports and whose function is to reduce the diameter of the outfall in order to increase the effluent exit velocity to obtain a better dilution in the receiving body of water.

**ARTICLE 2 - CLASSIFICATION OF THE WATERS OF PUERTO RICO
ACCORDING TO THE DESIGNATED USES
TO BE PROTECTED**

2.1 Coastal Waters and Estuarine Waters:

2.1.1 Class SA:

Class SA includes bioluminescent lagoons and bays such as La Parguera and Monsio José on the Southern Coast, Bahía de Mosquito in Vieques, and any other coastal or estuarine waters of exceptional quality of high ecological value or recreational which may be designated by the Board, through Resolution, as requiring this classification for protection of the waters. Section 3.2.1(B) of Article 3 of this Regulation will also apply to the waters 500 meters seaward of the physical and geographical limits of the bodies of water under this classification.

2.1.2 Class SB:

Class SB includes the coastal and estuarine waters not classified under sections 2.1.1 and 2.1.3 of this Article. Class SB also includes lagoons not classified under any other class. This classification will apply from the zone subject to the ebb and flow of tides (mean sea level) up to 500 meters seaward from said zone. Beyond this limit, the next less restrictive classification will apply to a maximum of 10.3 nautical miles seaward.

2.1.2.1 Shellfish growing areas:

Those areas that may be designated by the Board, through Resolution, as shellfish growing areas. The existing water quality regulations established by both the U.S. Public Health Service and the Department of Health of the Commonwealth of Puerto Rico shall be applied to this classification. This classification will apply 100 meters beyond the physical and geographical areas limiting the shellfish growing areas.

2.1.3 Class SC:

Class SC includes the segments of coastal waters identified below. The classification of these waters shall be applied from the zone subject to the ebb and flow of tides (mean sea level) to 10.3 nautical miles seaward.

- A. Mayaguez Bay – From Punta Guanajibo to Punta Algarrobo.**
- B. Yabucoa Port.**
- C. Guayanilla and Tallaboa Bays – From Cayo Parguera to Punta Verraco.**
- D. Ponce Port – From Punta Carenero to Punta Cuchara.**
- E. San Juan Port – From the mouth of Río Bayamón to Punta El Morro.**

2.2 Surface Waters:

2.2.1 Class SD:

All surface waters are classified SD, except those classified SE in accordance with Section 2.2.2 of this Article.

2.2.2 Class SE:

Laguna Tortuguero, Laguna Cartagena and any other surface water bodies of exceptional ecological value as may be designated by the Board through Resolution.

2.3 Ground Waters:

2.3.1 Class SG:

This classification includes all ground waters as defined in this Regulation.

2.3.1.1 Class SG1

Includes those ground waters which serve or have the potential to serve as source of drinking water supply and agricultural uses including irrigation. Also included under this class are those groundwaters that flow into waters which support ecological communities of exceptional ecological value in accordance with Sections 2.1.1 or 2.2.2 of this Regulation

2.3.1.2 Class SG2

Includes groundwaters which due to the high total dissolved solids concentration (concentrations greater than 10,000 mg/l) are not fit as source of drinking water supply even after treatment.

EXHIBIT B

Commonwealth of Puerto Rico
Office of the Governor
Environmental Quality Board

DEPARTAMENTO DE ESTADO

Número: 7837

Fecha: 31 de marzo de 2010

Aprobado: Hon. Kenneth D. McClintock
Secretario de Estado



Por: Eduardo Arosemena Muñoz
Secretario Auxiliar de Servicios

PUERTO RICO WATER QUALITY
STANDARDS REGULATION

(This regulation derogates Regulation 6616- "Puerto Rico Water Quality Standards Regulation" which was filed in the Department of State on May 14, 2003.)

March, 2010

RULE 1301 DEFINITIONS AND ACRONYMS

1301.1 DEFINITIONS

Acute Effect

Organism response to a stimulus, detected during an acute toxicity test that comprises a stimulus of such severity that induces a quick adverse effect. In toxicity tests, an acute response is considered to occur in a period of 96 hours or less. An acute effect can take place through events that not necessarily involve the death of the organism.

Acute Toxicity Test

Toxicity Test designed to determine the concentration in which a response to a stimulus, such as a total effluent, specific substance or combinations of these, has sufficient severity to induce an adverse effect on a group of test organisms during a period of 96 hours or less; even if said effect is not necessarily the death of the organisms.

Acute Toxicity Units (TU_a)

The reciprocal of the effluent concentration that causes 50% of the organisms to die in an acute toxicity test or induce a response halfway between the base line and maximum as defined by the following equation:

$$TU_a = \frac{100}{LC_{50} \text{ or } EC_{50}}$$

(The LC₅₀ or EC₅₀ is expressed as the percent (%) of effluent in the dilution water).

Agent

All the factors, including light and heat, which cause or could cause, induce or could induce, produce or could produce, influence or could influence, help or could help to cause variations or alterations in organisms or in the environment.

Adverse Effect

Refers to any human-induced change in the quality of a water body that may cause undesirable physiological reactions in humans, fish or other fauna or flora.

Applicable Rules and Regulations

See Rule 1306.1 (B).

Designated Uses

Refers to those uses specified in this Regulation for each water body or segment whether or not these uses are being attained.

Desirable Species

Species indigenous to the area or introduced to the area because of ecological or commercial value.

Diffuser

Structure which is connected to or is part of a submerged outfall provided with ports and whose function is to reduce the diameter of the outfall in order to increase the effluent exit velocity and obtain a better dilution in the receiving water body.

Dilution

Dilution is the reduction of the concentration of a substance by mixing it with ambient waters, and is defined by the following equations:

a. Volumetric Dilution:

$$D = \frac{V_e + V_d}{V_e}$$

where; D = Dilution
 V_e = Effluent volume
 V_d = Dilution volume (receiving water body)

b. Flow Dilution:

$$D = \frac{Q_e + Q_d}{Q_e}$$

where; D = Dilution
 Q_e = Effluent flow
 Q_d = Dilution flow (receiving water body)

c. Concentration Dilution:

$$D = \frac{C_e + C_a}{C - C_a}$$

where; D = Dilution
 C_a = Background concentration of the pollutant

Flocculating Agent

Chemical agent, which enhances the agglomeration of suspended solids in a liquid.

FORM WLA-01

Form required by the Board to present a waste load allocation application.

Frequency Curve

As used in this Regulation, the term refers to a graph plotted on log probability paper, representing the lowest mean flow of 7 consecutive days against the probability, using the procedures described in Appendix C of the Environmental Quality Board Waste Load Allocation Guidelines.

Gray Waters

Liquid and solid wastes from kitchens, bathrooms and water-using appliances except those that release or contain black waters.

Ground Waters

Sub-surface waters present at or beneath the water table, including waters in caves and caverns when the presence of water results from the manifestation of the characteristics of the saturated zone beneath the water table.

Habitat

The place where a population (e.g. human, animal, plant, microorganisms) lives and reproduces and its surroundings both living and non-living.

Harmonic Mean Flow (HMF)

The number of daily flow measurements (n) divided by the sum of the reciprocals of the flows (Q). That is, it is the reciprocal of the mean of reciprocals.

$$HMF = \frac{n}{\sum_{i=1}^n \frac{1}{Q_i}}$$

Hazardous Solid Waste

Any solid waste designated as hazardous by the Board and as defined by the Regulation for the Management of Non-Hazardous Solid Wastes of the Commonwealth of Puerto Rico.

3. Guayanilla and Tallaboa Bays – From Cayo Parguera to Punta Verraco.
4. Ponce Port – From Punta Carenero to Punta Cuchara.
5. San Juan Port – From the mouth of Río Bayamón to Punta El Morro.

1302.2 SURFACE WATERS

A. Class SD

All surface waters are classified SD, except those classified SE in accordance with Rule 1302.2 (B).

B. Class SE

Laguna Tortuguero, Laguna Cartagena and any other surface water body of exceptional quality or high ecological or recreational value which may be designated by the Board, through Resolution, requiring this classification for protection of the waters.

1302.3 GROUND WATERS

A. Class SG

This classification includes all ground waters as defined in this Regulation.

Substance		Classes SB and SC (µg/L)	Class SD (µg/L)	Class SG ^a (µg/L)
+, *	Hexachlorobenzene	0.0029 (HH)	0.0028 (HH)	0.0028 (HH)
+, *	Hexachlorobutadiene	180 (HH)	4.4 (HH)	4.4 (HH)
+	Hexachlorocyclopentadiene	1,100 (HH)	40 (HH)	40 (HH)
+, *	Hexachloroethane	33 (HH)	14 (HH)	14 (HH)
+, *	Ideno(1,2,3-cd)Pyrene	0.18 (HH)	0.038 (HH)	0.038 (HH)
+, *	Isophorone	9,600 (HH)	350 (HH)	350 (HH)
+, *	N-Nitrosodimethylamine	30 (HH)	0.0069 (HH)	0.0069 (HH)
+, *	N-Nitrosodi-n-Propylamine	5.1 (HH)	0.050 (HH)	0.050 (HH)
+, *	N-Nitrosodiphenylamine	60 (HH)	33 (HH)	33 (HH)
+	Nitrobenzene	690 (HH)	17 (HH)	17 (HH)
+	Pyrene	4,000 (HH)	830 (HH)	830 (HH)
+	Toluene	15,000 (HH)	1,000 (DW)	1,000 (DW)

Identification codes for the applicability of standards to uses. These codes include designated and existing uses.

DW = Protection of the water body for use as source of drinking water supply.

HH = Protection of the water body or aquatic life for reasons of human health.

* = Identifies a substance that may be a carcinogen.

+ = Identifies a priority pollutant.

a = For the protection of ground waters with the potential to be used or that are used as source of drinking water supply, the applicable water quality standard is the Drinking Water (DW) or Human Health (HH) criteria. For those ground waters that flow into other water bodies, the applicable water quality standard for ground waters is the most stringent criteria resulting from the comparison between the standard applicable to the classification of the water body into which it flows and the DW or HH criteria applicable to ground waters.

1303.2 USE CLASSIFICATIONS AND WATER QUALITY STANDARDS FOR SPECIFIC CLASSIFICATIONS

A. Class SA

1. Usages and Description

Coastal waters and estuarine waters of high quality or exceptional ecological or recreational value whose existing conditions shall not be altered, except by natural causes, in order to preserve its natural characteristics.

2. Standards

The concentration of any parameter, whether or not considered in this Rule, shall not be altered, except by natural causes. Substances reactive with methylene blue shall not be present.

E. Class SE

1. Usages and Description

Surface waters and wetlands of exceptional ecological value, whose existing conditions should not be altered in order to preserve its natural characteristics.

2. Standards

The concentration of any parameter, whether or not considered in this Rule, shall not be altered, except by natural causes. Substances reactive with methylene blue shall not be present.

F. Class SG

1. Usages and Description

Ground waters intended for use as source of drinking water supply and agricultural uses including irrigation. Also, included under this class are those ground waters that flow into coastal, surface, and estuarine waters and wetlands as defined in this Regulation.

2. Standards

a. Dissolved Gases

The composition, combination and concentration of dissolved gases shall not be altered except by natural causes.

b. Coliforms

Fecal coliforms shall not exceed 0 colonies/100 mL in any sample by the MF (Membrane Filter) method.

c. pH

Shall not be altered except by natural causes.

d. Color

Shall not be altered except by natural causes.

e. Turbidity

Shall not be altered except by natural causes.

f. Total Dissolved Solids

Shall not be altered except by natural causes. Here the term natural causes do not include salt water intrusion, unless this results from severe drought conditions.

g. Taste or Odor Producing Substances

Shall not be altered except by natural causes.

h. Surfactants as Methylene blue active substances (MBAS)

Shall not be present.